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Conditional Corruption

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Abstract:

We argue that the decision to bribe bureaucrats depends on the frequency of corruption within a society. We provide a behavioral model to explain this conduct: engaging in corruption results in a disutility of guilt. This implies that people observe a lower probability to be involved in corruption if on average the guilt level of others within a country is higher. We also explore whether - and to what extent - group dynamics or socialization and past experiences affect corruption. In other words, we explore theoretically and empirically whether corruption is contagious and whether conditional cooperation matters. We use the notion of "conditional corruption" for these effects. The empirical section presents evidence using two data sets at the micro level and a large macro level international panel data set covering almost 20 years. The results indicate that the willingness to engage in corruption is influenced by the perceived activities of peers and other individuals. Moreover, the panel data set at the macro level indicates that the past level of corruption has a strong impact on the current corruption level.

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“You were in jail?”

“Only for a few days. Bribery”

“Bribery? Who did you bribe?”

No, the problem was I hadn’t bribed anyone. They were very upset.”

Tibor Fischer, *Under the Frog*, cited in Leitzel (2003, p. 98).

I. INTRODUCTION

Corruption can be seen as a “symptom that something has gone wrong in the management of the state” (Rose-Ackerman 1999, p. 9). It is a phenomenon that is apparent throughout human history. For example, pharaohs in Ancient Egypt provided high salaries to the tax collectors (called scribes) to increase the opportunity costs of enriching themselves by cheating taxpayers (Adam 1993). The growing interest in institutional issues such as the transformation process of socialist economies has led to an increase in the number of studies devoted to exploring the causes and consequences of corruption at the international level. However, most of these studies explore corruption at the macro level while only a limited number of studies have investigated the determinants of corruption at the individual level (see, e.g., Mocan 2004, Swamy et al. 2001, Torgler and Valev 2006, Torgler and Dong 2008). Research has shown that a political economic approach stressing the importance of institutions has proved to be a powerful tool in understanding corruption (Rose-Ackerman 1999, Abed and Gupta 2002). Countries tend to achieve an equilibrium position that is driven by the balance of political forces and institutions (Bird, Martinez-Vazquez and Torgler 2004, 2007). However, such studies mainly take into account the *vertical* interrelationship between citizen and the state. Our paper, on the other hand, implements a horizontal perspective using a behavioral economics approach hypothesizing that social interactions matter. In particular we stress that the own willingness be corrupt depends on the corruption level of other

individuals in a society and that current corruption is affected by the past corruption levels. In other words, we are going to explore whether conditional corruption matters and whether corruption is contagious. The willingness to be corrupt is influenced by the perceived activities of peers and other individuals. Thus, a person's willingness to be corrupt depends on the pro-social behavior of other citizens. The more that others are perceived to be corrupt, the higher the willingness to be corrupt. The paper therefore emphasizes the relevance of social context in understanding corruption. Theories of contagion or pro-social behavior, which take the impact of behavior or the preferences of others into account, are used as a starting point in the theoretical approach. Contagion effects have been observed in other illegal activities such as assassinations, hijackings, kidnappings, and serial murders as referred to by Bikhchandi, Hirshleifer and Welch (1998). The relevance of social interaction and crime is explored by Glaeser, Sacerdote and Scheinkman (1996) who focus on the United States in their analysis both across cities and across precincts in New York. The results indicate that social interaction models provide a framework for understanding variances of cross-city crime rates. Individuals are more likely to commit crimes when those around them do. Frey and Torgler (2007) have found empirical evidence of conditional cooperation in the area of tax compliance. Kahan (1998) suggests that the decision to commit crimes is highly interdependent, based on the perceived behavior of others: "When they perceive that many of their peers are committing crimes, individuals infer that the odds of escaping punishment are high and the stigma of criminality is low. To the extent that many persons simultaneously draw these inferences and act on them, moreover, their perceptions become a self-fulfilling reality" (p. 394). As a consequence, individuals' beliefs about crime is altered, suggesting that social influence affects criminality and the propensity to commit crimes.

Figure 1 illustrates our argument: the higher the levels of perceived corruption in a society, the more citizens see it as justified. We first provide a simple theoretical explanation

of this observation and then check whether a more thorough study of the data supports the initial evidence suggested by the figure.

<insert figure 1 about here>

To our knowledge, our paper provides findings not yet discussed in the corruption literature. There are not many studies that investigate the relevance of conditional cooperation and a contagion effect in regards to corruption. We use the notion of “conditional corruption” for these effects. In particular, there is a lack of empirical evidence at the international level. The paper also complements a large set of laboratory experimental studies that have studied conditional cooperation by providing evidence outside of a lab setting. We will first conduct a micro analysis using data from two wide-ranging surveys, namely the *European Values Survey* and the *World Values Survey*. Despite the increasing interest of economists in the determinants of corruption, research at the micro level has not yet come under intense empirical investigation. The micro analysis is complemented by a macro analysis working with a large international data sets that covers almost 20 years. Before considering these findings in detail, however, Section II presents a theoretical model. Section III introduces the empirical part discussing the data and Section IV provides the empirical findings. Section V finishes with some concluding remarks.

II. THEORETICAL FOUNDATION

In this section, we theoretically investigate conditional cooperation in a corruption framework. We therefore use the notion of “conditional corruption” instead of conditional cooperation. Individuals condition their corruption on the behaviour of other individuals. An

individual is prone to be corrupt if there are a sufficient number of corrupt individuals around him. Aidt (2003) stresses that the return to corruption perceived by an official depends on the number of individuals expected to be corrupt in the same organisation or society. Corruption is more difficult to detect in societies where corruption is more common (Lui 1986, Cadot 1987). Moreover, individuals' perceptions of their environment are influenced by the realities of the past (Sah 1988, 2005). For example, a corrupt official continues to be corrupt if she has interacted with a sufficient number of corrupt officials in the past. This indicates that corruptibility of an official seems to be stable and is often known to potential corruptors.

Several theories have been put forward to explain what constitutes conditional cooperation in the area of behavioral economics. Most papers in the literature (Rabin, 1998 and Falk and Fehr, 2002) explain conditional cooperation in terms of reciprocity. In a corruption context, reciprocity means, that if corruption within a society is very prevalent, citizens feel less guilt when engaging in extra-legal activities, and are likely to act accordingly. Several laboratory experimental studies (mainly public good experiments) provide evidence on pro-social behavior (for an overview, see Gächter, 2006). For example, Fischbacher, Gächter and Fehr (2001) find that 50 percent of the subjects were conditionally cooperative. Falk, Fischbacher and Gächter (2003) create a laboratory situation in which each subject is a member of two economically identical groups, where only the group members are different. They observe that the same subjects contribute different amounts, depending on the behavior of the group. Contributions are larger when group cooperation is higher. Alternatively, the concept of conformity (Henrich, 2004) has been used to explain conditional cooperation. Conformity means that the motivation of behaving in a conditionally cooperative way may be influenced by the people's wish to fulfill the social norm of not being corrupt and behaving according to society's rules. While several early studies provide evidence of conditional cooperation within a laboratory setting, an increasing number of

studies have been conducted to check the validity of such studies outside of a laboratory setting using, for example, field experiments (see Frey and Meier, 2004a; 2004b; Heldt, 2005; Shang and Croson, 2005, Martin and Randal 2005). The study of a contagion effect and pro-social behavior resulting from a perceived level of corruption is an area that has largely been ignored in the empirically oriented corruption literature, despite its potential to affect the level of corruption even further.

2.1 Background of the Model

Since Akerlof (1980) emphasized the persistent effect of social norms on human behavior, interesting approaches based on the concept social norms have been developed that help explain conditional cooperation in human activities. One way to accommodate such behavior is to allow for a guilt disutility if a citizen engages in an activity that is contradicting social norms. The social customs literature provides a motive for the reason why there can be a utility loss by the act of evading taxes (see Naylor 1989). The essence of this approach is that violation of social norms will bring forth moral cost. In a tax compliance framework, Gordon (1989) modifies the standard economics of crime model by including non-pecuniary costs of evasion. Non-pecuniary or psychic cost increases as evasion increases. The model he developed can explain why some taxpayers refuse a favorable evasion gamble. Furthermore, dishonesty is endogenized as reputation cost. Non-pecuniary costs have a dynamic component, varying inversely with the number of individuals having evaded in the previous period. Other researchers such as Myles and Naylor (1996) criticize this approach, stating that the level of evasion or non-compliance is irrelevant. Once a social custom is broken, all utility from it is lost. In line with this argument we will also assume that once a person breaks the social norm, the fact of doing so is what counts, not the magnitude of the transgression. We assume in our model that incorruption is regarded as a prevailing norm in societies

(consistent with long-held moral standards), while corruption violates this social norm. Corruption and therefore the violation of this social norm generates guilt or shame (Elster 1989). The sentiments of guilt and shame may influence compliance behavior, reducing the perceived benefits of corruption. According to Lewis (1982), guilt arises when individuals realize that they have acted irresponsibly and in violation of an internalized rule or social norm. Since incorruption is an accepted social norm, it makes sense that individuals who choose to be corrupt feel guilty or ashamed. According to Spichtig and Traxler (2007), this internal sanction against violation will be more powerful if more individuals stick to the norm. In our case this means that when corruption is rare in a society, individuals tend to be incorrupt since the cost of violating social norm is very high. When corruption becomes more prevalent, more individuals become corrupt since the cost to infringe the norm declines.

Rege (2004) stresses that a social norm for cooperation can generate conditional cooperative behavior since the sanction for a norm deviation will force people to stick to the norm. Andvig and Moene (1990) also incorporate moral cost associated with social norms into traditional cost-benefit analysis developed by Becker (1976), deducing multiple self-fulfilling equilibria. The authors stress that the probability of corruption is related to its established frequency. On the other hand, Mishra's (2006) model uses an evolutionary game framework deriving multiple evolutionary stable states in corruption level. However, many previous corruption models have the limitation that they only consider the behavioral implications in regards to bureaucrats instead of focusing on the entire society¹. Both parties, bureaucrats and citizens, are players in the corruption game. Only analyzing the behavior of one side is not enough to explain any phenomenon related to corruption, especially in our context that focuses on conditional corruption.

¹ Mauro (2004) employed two models to analyze the behavior of bureaucrats and citizens respectively. His results, however, are not convincing since he did not investigate behavior of both sides simultaneously.

Social norms consist of a pattern of behaviour that must be shared by other people and sustained by their approval and disapproval (Elster 1989). Coleman (1990) stresses that social norms are rules of conduct enforced by external or internal sanction. Polinsky and Shavell (2000), who present a survey of the economic theory of public enforcement of law, emphasize the aspect of social norms for future research. Social norms can be seen as a general alternative to law enforcement in channeling individuals' behavior. The violation of social norms has consequences like internal sanctions (guilt, remorse) or external legal and social sanctions as gossip and ostracism. As Polinsky and Shavel (2000) state there is an expanding literature on social norms because of the influence social norms have on behavior, their role as a substitute for and supplement to formal laws and the possibility that laws themselves can influence social norms². Fehr and Gächter (1997) define social norm as: "behaviour regularity that is based on a socially shared belief how one ought to behave which triggers the enforcement of the prescribed behaviour by informal social sanctions" (p. 12).

2.2 A Simple Game

We consider a simple model of corruption. A citizen C (he) can attempt to bribe bureaucrat B (she) to earn an extra-legal profit Π . C and B have utility functions depending on (expected) income and the potential disutility if they engage in corruption. Let R be the income from any type of activity and c an index that is equal to 1 if this activity involves corruption (0 otherwise) and γ the disutility felt when engaged in corruption. The utility function is then given as:

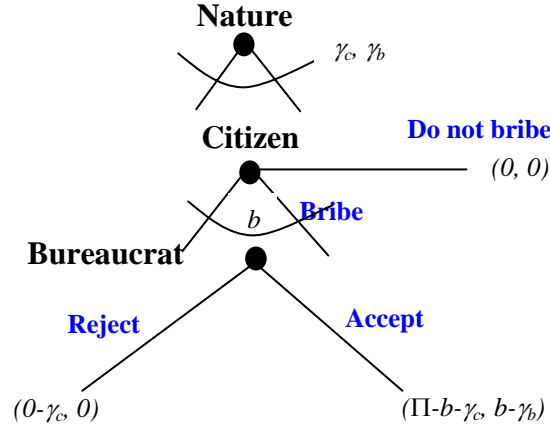
$$U(R,c)=R-c\gamma$$

² Posner (1997, pp. 365-366) looks at the incentives for obeying norms. He finds four: (i) norms that are self-enforcing because obedience confers private benefits, (ii) norms that are enforced by emotions, (iii) milder sanctions by expressions of disapproval or ridicule and (iv) internalized norms, out of a sense of guilt or shame.

We concentrate on a citizen's decision whether to engage in projects that involve corruption. Such projects generate an additional profit of Π over the best non-corrupt project. This could be, for example, a project that would have not received a public license according to the law or it may extend a project past the limits set by the law, or it may simply speed up the normal process. In all cases the gain Π represents an additional profit over the profit earned under normal proceedings. If this activity does not take place, all parties involved in a potential corruptive activity receive a default payoff that is normalized to 0. For simplicity of presentation, we assume that B accepts the bribe if indifferent and C bribes if indifferent.

Bribing and accepting a bribe incurs a cost of γ_c for C and γ_b for B . These costs represent guilt felt when engaging in bribing. Thus a low value of γ represents a high tendency to be corrupt. Before the game starts Π is drawn from a distribution function F and C and B draw a value of γ_c, γ_b ; we denote by Γ_c, Γ_b respectively the random variables and assume that both are distributed independently according to an identical distribution function G . We assume that when interacting, C knows B 's guilt parameter, i.e. at least γ_b is common knowledge between the two players. The timing of the game is as follows: 1. Nature draws Π, γ_c, γ_b ; 2. C decides whether to attempt a bribe or not and if he bribes he chooses an amount b ; 3. B decides whether to accept the bribe. Figure 2 summarizes the description of this game. It has a unique sub-game perfect Nash-Equilibrium in pure strategies: B accepts all bribes with $b \geq \gamma_b$. C bribes B if $\Pi \geq \gamma_c + \gamma_b$ paying a bribe of $b = \gamma_b$ as this bribe is accepted by B ; if $\Pi < \gamma_c + \gamma_b$ then C does not bribe.

Figure 2: Description of the Corruption Game



Given the equilibrium the conditional probability for C to engage in corruption depends on his guilt parameter and the expected value of the guilt parameter of a bureaucrat, he may interact with: $\Pr(\Pi \geq \gamma_c + \gamma_b \mid \gamma_c)$. This probability is decreasing in $E(\gamma_b)$. If we believe that people tend to justify their behavior then this conditional probability will determine how justifiable C would judge participation in corruption or bribery. Corruption is less justifiable for C the higher γ_c and the higher $E(\gamma_b)$. In this respect we observe conditional corruption – a low guilt cost in a society will induce even citizens with relatively high guilt cost to engage in corrupt activities. In the empirical section we use a large survey data set to explore this justifiability of corruption.

Hypothesis 1: *Citizens find corruption less justifiable if they perceive their society less corrupt.*

Note, we intentionally did not discuss Π . In the present model Π is exogenous. It may depend on the opportunities that open up only by bribery, hence a society with better institutions should allow most beneficial activities without bribes, hence Π may be lower, while a society

with weak institutions would have higher Π as profitable activities are accessible only when one bribes bureaucrats.

2.3 Dynamics

The second issue we address is the question how a tendency towards corrupt or non-corrupt behaviour. To do so we assume a simple overlapping generation model with a constant population model. We denote by an upper index t a generation's respective values. Each generation has one offspring and this offspring's guilt parameter γ^{t+1} decreases if the parent was involved in an act of corruption and it increases if the parent was not involved in an act of corruption. We assume that on average the absolute change in the parameter in both directions is of the same magnitude. If this is the case then if more (less) than half of the population is involved in corruption the median and the average γ increases (decreases) with the next generation:

$$\Pr(\Pi \geq 2\gamma) \geq 1/2 \Rightarrow \gamma_{0.5}^{t+1} \leq \gamma_{0.5}^t \text{ and } E(\gamma^{t+1}) \leq E(\gamma^t).$$

Hypothesis 2 *Corruption is contagious: A society experiencing a high (low) level of corruption will have increased (decreased) levels of corruption in the future.*

Again, the arguments with respect to Π hold, a higher Π - which may be due to weak institutions – will increase the spread of corruption over time. Strong institutions that allow all profitable activities to be undertaken legally will decrease corruption and hence over time will increase the guilt felt by citizens if they engage in corruption.

2.4 Conditional Corruption – Discussion and Extensions

The conditionality of corruption in our model comes from the fact that low guilt costs in society make it more likely that a citizen engages in corruption. The proposed dynamics imply that this leads to lower guilt costs within a society.

An alternative model giving rise to similar hypotheses is one where the individual's guilt cost depends on the frequency of corruption within a society. In this case $\gamma = f(\Pr(\Pi \geq 2E(I)))$ with $f'(\cdot) < 0$. In this case an equilibrium can be defined as a fixed-point of this function and, depending on the explicit assumption on the distribution function, could give rise to two or more equilibria where some are characterized by self-confirming on average high values of γ and others by self-confirming low values of γ . Spichtig and Traxler (2007) provide a model for conditional cooperation in this spirit.

III. DATA AND METHODOLOGICAL APPROACH

3.1 Micro Analysis

In the first stage we are going to work with survey data at the micro level to explore our first hypothesis. This allows us to work with a representative set of individuals, which is not often the case in previous (experimental) studies that have explored conditional cooperation primarily by using students as participants³. We are going to use two micro data sets. First we are going to work with the European Values Survey (EVS) 1999/2000, which is a European-wide investigation of socio-cultural and political change. Next, we are going to explore the World Values Survey (WVS), a worldwide data set that investigates socio-cultural and political change. The WVS was first carried out in 1981-83, with subsequent surveys being carried out in 1990-93, 1995-97 and 1999-2001.

³ Fehr et al. (2003) report that the problem with using students is that they have a higher level of education and a higher IQ than average citizens. In addition, they often come from families with a higher than average income and their age range is limited.

3.1.1 European Values Survey

The EVS assesses the basic values and beliefs of people throughout Europe. The EVS was first carried out from 1981 to 1983, then in 1990 to 1991 and again in 1999 through 2001, with an increasing number of countries participating over time. The EVS methodological approach is explained in detail in the European Values Survey (1999) source book, which provides information on response rates, the stages of sampling procedures, the translation of the questionnaire, and field work, along with measures of coding reliability, and data checks. All country surveys were carried out by experienced professional survey organizations, (with the exception of the one in Greece), and were performed through face-to-face interviews among samples of adult citizens aged 18 years and older. Tilburg University coordinated the project and provided the guidelines to guarantee the use of standardized information in the surveys and the national representativeness of the data. To avoid framing biases, the questions were asked in the prescribed order. The response rate varies from one country to another; in general, the average response rate was around 60%.

Because the EVS asks an identical set of questions to people in various European countries, the survey provides a unique opportunity to examine the impact of conditional corruption. Our study considers representative national samples of at least 1000 individuals in each country (see Appendix *Table A1*).

Our dependent variable is *justifiability of corruption* assessed using the following question:

Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: (...) someone accepting a bribe in the course of their duties (1=always justified, 10= never justified).

The interpretation of this question is that higher values are in line with a lower justifiability of corruption. This variable can be seen as a proxy for social norms of compliance (see Torgler 2007). We use the following question to investigate the impact of conditional corruption:

“According to you, how many of your compatriots do the following: Accepting a bribe in the course of their duties?” (4=almost all, 1=almost none)

3.1.2 World Values Survey

We are going to work with the third WVS wave as the question referring to individual conditional corruption has *only* been asked in this wave. For the researchers who conduct and administer the *World Values Survey (WVS)* in their respective countries, it is a requirement that they follow the methodological requirements of the World Values Association. For example, surveys in the World Values Survey set are generally based on nationally representative samples of at least 1000 individuals of 18 years and above (although sometimes people under the age of 18 participate). The samples are selected using probability random methods, and the questions contained within the surveys generally do not deviate far from the original official questionnaire (for a sample of a typical World Values Survey see www.worldvaluessurvey.org). We have not analyzed the entire World Value Survey data set: countries below 750 observations have not been included in the estimations to reduce possible biases due to a lack of representativeness (for an overview see Appendix *Table A2*)⁴. Furthermore, some countries do not have information on the dependent variables or some of the independent variables. These countries are therefore not considered.⁵

⁴ Thus, Montenegro and the Dominican Republic have been omitted.

⁵ Japan, South Africa, Puerto Rico, Turkey and Columbia. Moreover, Sweden could not be included as one of the control variables (education) has been coded differently.

We use the same dependent variable as previously, namely the *justifiability of corruption*. On the other hand, we assess the relevance of conditional corruption using an alternative question that measures perceived corruption:

How widespread do you think bribe taking and corruption is in this country?

Almost no public officials are engaged in it (1)

A few public officials are engaged in it (2)

Most public officials are engaged in it (3)

Almost all public officials are engaged in it (4)

3.1.3 Addressing the Limitations of Survey Data

Two main limitations of survey data are often raised: a self-reporting bias and cognitive biases. We address these issues in turns.

First: The validity of the justifiability of corruption variable can be criticized as it reports a *self-reported* and *hypothetical* choice (see Swamy et al. 2001). It can also be argued that an individual who has engaged in corruption in the past will tend to cover up such behavior by declaring a low justifiability of corruption in the survey. Furthermore, cross cultural comparisons should be treated with some caution. In countries where corruption is widespread and delays in transactions are long, additional payments to “speed up” the process may be justifiable and a normal part of the administration process. The necessity of additional payments is so pervasive in some countries that the bureaucratic mechanism does not operate without them (De Soto 1989). However Torgler and Valev (2006), show that survey data on corruption is highly correlated with other available proxies of corruption (Transparency International, Kaufmann, Kraay, and Mastruzzi, 2004 (KKM) and ICRG (Knack, 1999)).

Another aspect of the self-reporting bias is that cultural differences play a role. To control for this we extend our study by also adding a country's overall corruption values into the micro data set. We use the control of corruption variable developed by KKM due to the large number of countries included in this data set. The proxy measure is driven by the traditional notion of corruption namely "the exercise of public power for private gain" covering a variety of aspects ranging from the frequency of "additional payments to get things done" to the effects on the business environment (p. 8). The values lie between -2.5 and 2.5, with higher scores corresponding to a lower level of corruption. Figure 3 illustrates our argument with respect to the self-reporting bias. It shows that justifiability of corruption is highly correlated with other more frequently used measures of corruption.

<insert Figure 3 about here>

Second, Bertrand and Mullainathan (2001) argue that cognitive problems arise – the experimental literature has shown that manipulations (e.g., order of the question, wording or scales) can affect how people process and interpret questions. The problem is that "respondents may make little mental effort in answering the question, such as by not attempting to recall all the relevant information or by not reading through the whole list of alternative responses" (Bertrand and Mullainathan, p. 68). To control for such problems, we explore the correlation between two similar questions asked in the EVS (WVS) in different parts of the interview: *How interested would you say you are in politics?* (IP) *Very interested (value 1), somewhat interested (2), not very interested (3), not at all interested*). *How important is politics in your life?* (INP) *Very (1), (rather 2), not very (3), not at all (4)*. The correlation at the micro level is 0.614 (0.544). Moreover, we also explore the correlation with the following question: *When you get together with your friends, would you say you discuss*

political matters frequently (value 3), occasionally (value 2) or never (value 1)? (DP). The correlation between INP and DP is 0.451 (0.533) and between IP and DP 0.564 (0.383). Thus, the variables are highly correlated. Face-to-face interviews may also help to guarantee that subjects are aware of the whole list of alternative responses. The EVS (WVS) has also the advantage of being a wide-ranging survey covering a large amount of different topics. Thus, our corruption question was only part of a larger survey, which may reduce *framing biases*.

3.2 Macro Analysis

To address our second hypothesis, the analysis will be complemented by use of a large international panel macro data set: the ICRG data (see Knack 1999) covering 18 years (1986 till 2003). We use ICRG as KKM has only been collected for a limited number of years (1996, 1998, 2000, 2002), and while ICRG allows us to study fewer countries, it provides panel data for a longer time period. The political risk rating provided by ICRG aims to assess the political stability of the included countries. The corruption variable is an assessment of corruption within the political system. The measure is concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, “favor-for-favors”, secret party funding, and suspiciously close ties between politics and business. The macro data set has the great advantage of being able to explore the importance of a contagion effect over time.

IV. RESULTS

4.1 Micro Level using the EVS

The micro analysis will allow us to explore our first hypothesis. One can argue that the potential conditional corruption effect could be influenced by other variables that affect corruption. Thus, we control in our multivariate analysis for variables such as education level⁶, political interest⁷, religion⁸, risk attitudes⁹, the economic situation¹⁰, urbanization¹¹

⁶ EVS: Formal education: At what age did you complete or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships.

WVS: What is the highest educational level that you have attained?

1. No formal education
2. Incomplete primary school
3. Completed primary school
4. Incomplete secondary school: technical/vocational type
5. Complete secondary school: technical/vocational type
6. Incomplete secondary: university-preparatory type
7. Complete secondary: university-preparatory type
8. Some university-level education, without degree
9. University-level education, with degree

⁷ EVS/WVS: How important is politics in your life? very (4), (rather 3), not very (2), not at all (1).

⁸ EVS: Apart from weddings, funerals and christenings, how often do you attend religious services these days? More than once a week, once a week, once a month, only on special holy days, once a year, less often, practically never or never (8 = more than once a week to 1 = practically never or never).

WVS: Apart from weddings, funerals, and christenings, about how often do you attend religious services these days? More than once a week, once a week, once a month, only on special holy days, once a year, less often, never or practically never. (7 = more than once a week to 1 = never or practically never).

⁹ EVS: Here are some aspects of a job that people say are important. Please look at them and tell me which ones you personally think are important in a job? (15 items). Risk aversion: Good job security (1 = mentioned).

WVS: Now I would like to ask you something about the things which would seem to you personally, most important if you were looking for a job. Here are some of the things many people take into account in relation to their work. Regardless of whether you're actually looking for a job, which one would you, personally, place first if you were looking for a job?

1. A good income so that you do not have any worries about money
2. A safe job with no risk of closing down or unemployment
3. Working with people you like
4. Doing an important job which gives you a feeling of accomplishment

And what would be your second choice?

A dummy variable was built with the value 1, if someone has chosen 2 as first or as second choice.

¹⁰ EVS and WVS: Here is a scale of incomes and we would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, after taxes and other deductions (scale from 1 to 10)..

¹¹ EVS and WVS: Size of town:

1. Under 2,000
2. 2,000 - 5,000
3. 5 - 10,000
4. 10 - 20,000
5. 20 - 50,000
6. 50 - 100,000

and the employment and marital status. Previous tax compliance and corruption studies demonstrate the relevance of considering these factors (see, e.g., Torgler 2007, Torgler and Dong 2008).

Table 1 presents the first results obtained by working with the European Values Survey. In the first specification we recode the original dependent variable into a four-point scale (0, 1, 2, 3), with the value 3 standing for “never justified”. Responses 4 through 10 were combined into a value 0 due to a lack of variance among them. This approach is consistent with previous studies (see, e.g., Torgler and Valev 2006, Torgler 2007). In the second specification we use the original 10-point scale. In both cases we are going to use an ordered probit model. The ordered probit models are relevant in such an analysis insofar as they help analyze the ranking information of the scaled dependent variable. The data structure indicates that we have a natural cut-off point. A large amount of respondents assert that corruption is “never justified” (71 percent of the cases). Our dependent variable therefore takes in the following specifications: the value 1 if the respondent says that bribing is “never justified” and 0 otherwise. This requires the use of a probit model in most of the specifications (see also *Table 3*). We also use *weighted* (ordered) probit estimations to correct the samples and thus to get a reflection of the national distribution. Moreover, since equations have a nonlinear form, only the sign of the coefficient can be directly interpreted and not its size. We therefore also calculate the marginal effects to find the quantitative effect of a variable on our dependent variable. The marginal effect indicates the change in the share of individuals (or the probability of) belonging to a specific justifiability level, when the independent variable increases by one unit¹². In all estimations the marginal effects are presented only for the

7. 100 - 500,000

8. 500,000 and more.

¹² Again, it should be noted that higher values are connected to a lower justifiability of corruption.

highest value. Furthermore, it should be noted that answers such as “don’t know” and missing values have been eliminated in all estimations.

First, we differentiate between Western and Eastern Europe as the reform process in the transition countries has resulted in disorientation and a heavy economic burden (Kasper and Streit (1999) and Gërxhani (2002)). The rapid collapse of institutional structures produced a vacuum in many countries that led to large social costs, especially in terms of worsening income inequality and poverty rates and bad institutional conditions based on uncertainty and high transaction costs. Alm, Martinez-Vazquez and Torgler (2006) report that governments faced difficult policy choices in this new era regarding the role of the public sector in general and the structure of the tax system in particular. Furthermore, Kornai (1990) and Martinez-Vazquez and McNab (2000) report that citizens in many transition countries were not used to paying taxes at the beginning of the transition process. Thus, taxpayers may have reacted strongly to the tax policy changes necessary for the transition from a centrally controlled economy to a market economy. Moreover, rather than using a dummy variable to differentiate between Western and Eastern Europe, we consider also country fixed effects in specification (4).

Table 1 shows that the higher is the perceived corruption of other persons, the higher is the justifiability of corruption. The coefficient is always statistically significant at the 1% level and the size of the effect is substantial; if perceived corruption rises by one unit, the percentage of persons reporting that corruption is never justified falls between 3.8 and 5.1 percentage points. Thus, we find support that conditional corruption matters.

Looking at the other variables we find support for results from previous studies in the literature. In line with Torgler and Dong (2008) we observe that political interest is negatively correlated with the justifiability of corruption. An increase in the political interest scale by one unit increases the probability of stating that taking bribes is never justified by

around 1.5 percentage points. There is also a positive correlation between education and the social norm of compliance. However, the effect is less strong (see, e.g., specification (4)). Moreover, we also observe that older people and women exhibit a higher willingness to comply. These results support previous findings that explored in detail a potential age¹³ and gender effect¹⁴. Married and widowed people report the lowest justifiability of corruption. The coefficients are statistically significant in relation to the control group (singles). On the other hand, we do not observe that the employment status matters. However, religion has an impact on corruption. The church as an institution induces behavioral norms and moral constraints among their community (Torgler 2006). Religiosity seems to affect the degree of rule breaking. Religiosity can thus be a restriction on engaging in corrupt activities. Interestingly, we also observe that risk aversion matters. Risk averse people are less likely to justify corruption which is consistent with suggestions in the compliance literature that risk aversion reduces the incentive to act illegally. In our model it can be explained by introducing risk aversion and some uncertainty of C with respect to γ_b . Controlling for risk attitudes allows for better insights regarding the variables of age, gender, or economic situation. For example, it could be argued that the obtained difference between women and men or between different age groups is influenced by different risk attitudes functions. Hartog et al. (2002), e.g., conducted an empirical survey analysis and found that an increase in income reduces risk aversion. The estimated coefficient for the Western Europe dummy suggests that the institutional crisis in many transition countries in Eastern Europe after the collapse of communism tended to have a positive effect on citizens' justifiability of

¹³ For example, Torgler and Valev (2006) investigate the willingness of being corrupt of the same cohorts over time (age effect) as well as and the same age groups in different time periods (cohort effect). All in all they observe a consistent age effect. On the other hand, a cohort effect is less obvious.

¹⁴ Torgler and Valev (2007) explored whether gender matters and whether a decrease of gender differences with greater equality of status and better opportunities affects their willingness to comply. They find evidence for strong gender differences. Women are significantly less likely to agree that corruption and cheating on taxes can be justified. The results remain robust after investigating different time periods and extending the specification with several opportunity factors.

corruption. The marginal effects indicate that being a citizen of a Western European country rather than an Eastern European country increases the probability of responding that corruption is never justified by more than 5 percentage points. Finally, we also explore whether urbanization matters. It has been argued that corruption may be higher in larger cities due to the fact that the scale of economic activities is larger and more varied in scope resulting in a higher level of government contacts. Moreover, government officials may be less personal compared to those in smaller cities which may reduce the opportunity costs of bribing (Mocan 2004). *Table 1* shows that the coefficient is statistically significant at the 5 or 10% percent level with a marginal effect of 0.3 percentage points. Thus, this relationship cannot be rejected although it should be noted that the effect is smaller in relation to other factors.

In the last specification in *Table 1* we go beyond the original probit model (1=never justified) as the answer to the question might be biased by experimenter demand. It is obvious that the “socially correct” answer would be “never justified”. Such a concern arises if a large number of people who think that bribing is justified were to instead claim that bribing is never justified. Thus, in other words, if the respondent wants to give the “socially acceptable” answer he would say “1” and if not he would answer truthfully. In this latter case, an answer of “0” might be indicative of a much higher social norm than an answer of “1”. In this case we would have a problem that respondents want to avoid looking bad in front of the interviewer (Bertrand and Mullainathan 2001). It would also indicate that we would observe systematic biases rather than just random errors. We therefore try a different cut-off point. We report a probit model where we convert the values 1 and 2 to 1 (all the other values = 0). The results in *Table 1* indicate that conditional corruption matters showing similar quantitative effects.

In *Table 2* we conduct further robustness checks. We report only the findings using a probit model as *Table 1* has shown that the probit model provides higher Pseudo R2 values. First, we try to better isolate a conditional cooperative effect by adding GENERALIZED TRUST as a variable.¹⁵ Specification (5) shows that the trust coefficient is not statistically significant. On the other hand, our conditional corruption variable (*SAB*) remains highly statistically significant with a marginal effect of 5 percentage points. In a next step we add income¹⁶ as a further variable. We have added the variable sequentially in the specification as the number of observations decreases once you control for household income. Also here we observe a robust result. The variable *SAB* is statistically significant at the 1% level and the quantitative effect even increases. Income is also statistically significant with a negative sign. In specifications (8) to (10) we provide an interesting extension. We introduce a further corruption variable into the specification. However, compared to *SAB*, CONTROL OF CORRUPTION measures the perceived level of corruption at the macro level¹⁷. As it can be criticized that including an aggregated variable in a micro data set may produce downward biased standard errors, we provide estimations with standard errors adjusted to clustering on countries. Specification (8) shows that both corruption variables are statistically significant at the 1% level with high marginal effects. An increase in the CONTROL OF CORRUPTION scale by one unit increases the probability of reporting that corruption is never justified by 6.9 percentage points. On the other hand, the marginal effect for the *SAB* is consistent with the previous findings. In specification (9) we do not include *SAB* to maximize the number of available countries in the data set as *SAB* has not been collected in all the countries that participated in the EVS¹⁸. In specification (10) we also neglect INCOME, to increase the

¹⁵ Generally speaking, would you say that most people can be trusted or that you can't be too careful in your dealings with people? (1=most people can be trusted, 0=can't be too careful.).

¹⁶ As discussed this is a ten-point income scale from 1 to 10 (10-quantiles).

¹⁷ Again, higher values are in line with a lower level of corruption.

¹⁸ This allows to move from 15 to 30 countries.

number of observations. The results are robust and the marginal effects are even higher (between 7.3 and 8.0 percentage points).

Causality remains an issue because one's own justifiability of corruption may lead to the expectation that others behave in the same way. However, results from strategy method experiments done by Fischbacher et al. (2001) and Fischbacher and Gächter (2006) that carefully investigate the causality problem suggest that causality goes from beliefs about others' cheating to one's own behavior rather than vice versa. In our empirical work, we also present several two-stage least squares (2SLS) estimations with different instruments and include several diagnostic tests to deal with the causality problem. However, we test for the relevance and validity of the instruments and the overidentifying restrictions. Moreover, we try to filter out a possible systematic bias in our conditional corruption effect by correcting for differences between what an individual thinks and what that individual projects on others. This provides a possible way of correcting parts of such a potential bias.

To check for robustness, we are going to use a variety of instruments in our 2SLS regressions reported in *Table 3*. In specification (11), we use an index of perceived honesty as an instrument for *SAB*¹⁹. In the second one, we also use GENERALIZED TRUST as an instrument. As seen previously, generalized trust did not affect the justifiability of corruption. However, as *Table 3* shows generalized trust is a good instrument for conditional corruption. Next, we also consider a second index of perceived honesty²⁰. The results indicate that the variable *SAB* remains statistically significant in all the 2SLS. *Table 3* also reports the results of the Anderson canonical correlation likelihood-ratio test to test whether the equation is identified as a measure of instrument relevance. The test shows that the null hypothesis can

¹⁹ Index covering the average value of the following questions: *According to you, how many of your compatriots do the following: Claiming state benefits to which they are not entitled. Cheating on tax if they have the chance. Paying cash for services to avoid taxes. Speeding over the limit in built-up areas. Taking the drug marijuana or hash. Driving under the influence of alcohol (scale from 1 to 4).*

²⁰ Index covering the average value of the following questions: *Speeding over the limit in built-up areas. Taking the drug marijuana or hash. Driving under the influence of alcohol (scale from 1 to 4).*

be rejected, indicating that the model is identified and the instruments are relevant in all cases. *Table 3* further shows that the F -tests for the instrument exclusion set in the first-stage regression are statistically significant in all cases. In addition, we test for the validity of the instruments using a Hansen test of overidentifying restrictions. *Table 3* indicates that the null hypothesis that the excluded instruments are not correlated with the error term cannot be rejected. Thus, the results confirm the validity of the instruments.

In addition, to deal with a potential causality problem, we filter out a possible bias in the conditional cooperative effect. Again, the causality problem may arise because an individual's justifiability of bribing might lead to the expectation that others behave in the same way. Thus, individuals with a higher social norm of compliance have a lower perception that others are bribing. To deal with this possibility, we calculate first the average perceived corruption for each country. In the next step, we calculate the average perceived tax evasion in each country for individuals having the lowest justifiability of corruption. In a further step, we build the difference between both average values. This variable may measure a particular bias in perceived corruption due to the level of social norms. In a last step, we add this bias to the individual values of the group with the lowest justifiability of corruption values. As a consequence, each of the individuals with the highest social norm of compliance now has higher perceived corruption values. Hence, the values between the group with the higher and lower justifiability of corruption values are brought closer together, depending on the perceived corruption situation in each country. This procedure may help to better isolate the existence of a conditional corruption. *Table 4* presents the results for the filtered perceived corruption variable using specifications in line with *Table 1* and *2*. The coefficient remains highly statistically significant and, although the marginal effects have (in general) decreased from previous estimates, they still are very high.

4.2 Micro Level using the WVS

In a next step we are going to use an alternative data source to check whether the previously obtained results remain robust. As discussed, we are using a slightly different proxy for conditional corruption. The WVS provides the possibility to explore a large set of countries and further regions. This also provides the opportunity to explore the relevance of conditional corruption at the macro level. We work with average values within each country using for our dependent variable the 4 point scale (0 to 3). Figure A3 shows a relatively strong negative correlation (Pearson $r=-0.424$), significant at the 0.01 level. Looking at the linear relationship in a simple regression shows that conditional corruption can explain 18 percent of the total variance of the justifiability of corruption.

In general, empirical support for a theoretical foundation depends not only on the validity of the theory but also on the quality of the data. It is not possible to ascertain with survey data whether respondents are truthful in their answers as truth is not observable by the interviewers (Kanazawa 2005). To validate statements one could explore the correlation between respondents' statements and the CONTROL OF CORRUPTION variable at the macro level using country averages. Figure A3 shows an expected positive correlation (Pearson $r=-0.381$) statistically significant at the 0.05

Working with the WVS we are also able to control for the similar independent variables²¹. *Table 5* presents the first results. We explore regressions with regional or country fixed effects. Moreover, we provide evidence with and without the income variable. In addition, we also include sequentially the macro corruption variable CONTROL OF CORRUPTION. In all the specifications the variable PERCEIVED LEVEL OF CORRUPTION is statistically significant with marginal effects between 0.6 and 3.5

²¹ See definition of the variables in previous footnotes.

percentage points. In addition, the macro variable CONTROL OF CORRUPTION is also statistically significant with marginal effects close to 6 percentage points. To deal with the social desirability problem we also change the cutoff point (see last specification in Table 1). The values 1 and 2 in the original scale have been coded as 1 and all other values as 0. The coefficient is highly statistically significant, reporting even larger marginal effects than comparable results in specification (20). Thus, we can conclude that conditional corruption is also observable when using alternative data sources. The control variables show similar tendencies. A higher level of political interest is correlated with a lower justifiability of corruption. Risk averse and married people are also less inclined to justify corruption. On the other hand, self-employed individuals are more likely to justify corruption. Similarly, we also observe an age and gender effect. However, the effects of religiosity, urbanization and income are less strong.

Table 6 presents 2SLS estimations using generalized trust as an instrument for perceived corruption (in line with *Table 3*). Looking at the first stage regressions and the diagnostic tests we can conclude that generalized trust is a good instrument²². The results also show that PERCEIVED CORRUPTION (*PLC*) remains statistically significant, providing therefore further support for previous findings. We report additional findings in *Table 7* obtained with a filtered *PLC* variable using previous specifications. Also here we observe that the *PLC* coefficient is always statistically significant with a negative sign. Thus, even after filtering we can conclude that conditional corruption matters.

²² The WVS does not provide the possibility to consider an index of perceived honesty.

In sum, after a check for endogeneity and several checks for robustness, the significant impact of perceived corruption remains unaffected at the micro level. Thus, hypothesis 1 cannot be rejected. In the next stage we are going to explore the importance of conditional corruption at the macro level over time in order to explore hypothesis 2.

4.3 Macro Level Using a Large Panel Data Set

In the previous analysis we were only able to explore conditional corruption in a cross-sectional setting. In this next step, it is highly relevant to bring in the time dimension to see the potential dynamics of conditional corruption. This requires the use of a panel data set. Therefore, we are going to work with a large international panel data set that covers 18 years (1986 till 2003). As discussed previously, we use the ICRG data to get a measurement of (perceived) corruption. The panel analysis will help us to see whether corruption is contagious. Sah (2005, p. 6), e.g., stresses “If past experiences have convinced some citizens that corruption is more pervasive in the economy, then they are more likely to cheat. Likewise, if their past experiences have convinced some bureaucrats that cheating is more pervasive in the economy, then they are more likely to choose to be corrupt...Through these dynamic relationships, future levels of cheating and corruption in the economy become explicitly linked to past levels of cheating and corruption in the economy...”. A contagion effect can increase the demand for corruption as individuals perceive additional opportunities for bribing (Goel and Nelson 2007). It can also affect the supply of corruption as potentially corrupt bureaucrats are aware of the high probability that one can be corrupt without being caught and penalized. Moreover, bureaucrats could also try to introduce lax enforcement and punishment strategies for corruption (Goel and Nelson 2007). Similarly, the criminal literature has stressed that the prevalence of a given type of criminal behavior may change the propensity of others to engage in that same behavior. It affects the perceptions about the net

return of such a behavior (information function) and also the probability of arrests or constraints (Ludwig and Kling 2006, Cook and Goss, 1996; Becker and Murphy, 2000; Manski, 1993, 2000). A contagion effect in crimes has been observed in the areas of assassinations, hijackings, kidnappings, and serial murders (Bikhchandi, Hirshleifer and Welch 1998). However, only a limited number of studies have provided empirical evidence focusing on corruption. Evidence is mainly available from the US. Goel and Nelson (2007), use state-level U.S. data in a cross-sectional analysis data over the period 1995–2004, and find that the effect of neighboring corruption is positive and statistically significant - showing therefore that corruption does appear to be contagious. A 10% increase in corruption in neighboring states appears to increase corruption in a state somewhere in the range of 4–11%. Our study adds to the literature by using panel data and exploring a contagion effect at the international level. In line with studies on contagion in general, we are going to use lagged values to explore its impact²³. To isolate such an effect we are going to control for further factors such as law and order²⁴, democratic accountability²⁵, economic performance, or the level of openness. Discretion in the application of rules enhances corruption. On the other hand, a strong legal system that penalizes deviance reduces the incentives to act illegally (high LAW AND ORDER value). In addition, a more encompassing and legitimate state increases the willingness to contribute. If citizens perceive that their interests (preferences) are properly represented in political institutions and they receive an adequate voice, their identification with the state increases, their willingness to be corrupt decreases (high DEMOCRATIC ACCOUNTABILITY value). Moreover democratic accountability helps to limit the abuse of political power by selfish politicians, when citizens cannot completely

²³ Similarly, Becker (1996) stresses in a general framework that individual's consumption (C_i) depends on that of other individuals in the past ($C_{j,t-1}$) and on individual i consumption in a previous period ($C_{i,t-1}$).

²⁴ The 'law' sub-component measures the strength and impartiality of the legal system, while the 'order' sub-component is an assessment of popular observance of the law.

²⁵ Measures how responsive the government is with its people.

foresee incumbents' preferences, elements of direct democracy also empower them with an instrument for controlling the government. Levi (1988) points out that a possible method of creating or maintaining compliance is to provide reassurance by the government. A government that precommits itself with direct democratic rules imposes restraints on its own power and thus sends a signal that taxpayers are seen as responsible persons. Voting possibilities also provide utility in themselves. Citizens value the right to participate, because it produces a kind of procedural utility as the opportunity set increases which fosters the moral costs of behaving illegally and enhances rule obedience (Torgler and Schneider 2007). Moreover, political involvement and political attention is correlated with income as political attention may be a luxury good and therefore people pay more attention to corrupt activities and are better able to take actions against these officials (Glaeser and Saks 2006). Thus we would observe a negative correlation between GDP per capita and corruption. Moreover, economic rents will decrease with a higher level of economic competition. Ades and Di Tella (1999) find that corruption is higher in countries where domestic firms are protected from foreign competition. We use data provided by Dreher (2006) that measure three main dimensions of openness: economic, social and political globalization. The overall index of globalization covers not less than 23 variables.

Thus, to test our second hypothesis, we propose the following baseline equations:

$$CR_{it} = \alpha + \beta_1 CTRL_{it} + \beta_2 CR_{i(t-1)} + \beta_3 LO_{it} + \beta_4 DA_{it} + \beta_5 GL_{it} + TD_t + REGION_i + \varepsilon_{it} \quad (11)$$

where i indexes the countries in the sample and t denotes the time period. CR_{it} denotes the level of corruption (higher values=lower level corruption) and $CR_{i(t-1)}$ is the one year lag of corruption. LO_{it} is our law and order variable, DA_{it} the proxy for democratic accountability

and GL_{it} the proxy for globalization. The regressions also contain several control variables, $CTRL_{it}$, including GDP per capita and the population size. We control for time as well as regional invariant factors including fixed time, TD_t , and fixed regional effects, $REGION_i^{26}$. ε_{it} denotes the error term. *Table 8* presents the results. We report *beta* or *standardized* regression coefficients to compare magnitude, which reveals the relative importance of the variables used. To obtain robust standard errors in these estimations, we use the Huber/White/Sandwich estimators of standard errors. First we only include our lagged corruption variable. The coefficient is highly statistically significant with a high beta coefficient. We observe that the lagged corruption value together with time and regional fixed effects already explain more than 60 percent of the total variance of the variable corruption. In the next regression, we add our control variables together with the globalization index as independent variables. The results show that the coefficient for CORRUPTION(t-1) ($CR_{i(t-1)}$) is still statistically significant at the 1% level reporting the highest beta coefficients among the used independent variables. *Table 8* also shows that economic development and globalization have a negative impact on corruption. However, it should be noted that this effect disappears once you control for governance/institutional factors in the third specification reported in *Table 8*. An increase in GLOBALIZATION and GDP per capita leads to a decrease in corruption. Moreover, a faster growing population has a positive effect on corruption. The third specification introduces governance and institutional factors. We find that both factors, LAW AND ORDER (LO_{it}) and DEMOCRATIC ACCOUNTABILITY (DA_{it}), are statistically significant. Also here we find that the past level of corruption has the strongest impact, followed by institutional/governance variables and

²⁶ We differentiate between Europe, Latin America, North America, North Africa, Sub Saharan Africa, Pacific, Asia, Caribbean and Australia.

globalization. Thus, the macro results show that corruption is not independent of the past experiences.

We conduct a further robustness test to deal with a potential “social desirability” bias using the EVS and WVS. We run a two-stage approach where the previous estimations were just the first stage. First, respondents decide whether or not to answer that corruption is never justified (“socially correct response”). In a second stage, given the decision to answer something other than the socially correct response, individuals report a value from the remaining scale (1 to 9). The results are not reported in a table but indicate that our conditional corruption variable is always statistically significant.

In sum, the micro and macro evidence generated in this paper suggests that social forces and past experiences matter. Conditional corruption is a key factor in understanding corruption.

V. CONCLUSIONS

Traditional economics assumes that preferences are independent of the behavior of everyone else and also independent of past and future consumption. Therefore choices affect only the agents directly involved. However, in the last few decades economists have paid more attention to the structure of preferences. For example, social interactions, an aspect that has long been discussed by important figures such as Adam Smith (1759/1976), Karl Marx (1849), Thorstein Veblen (1899) or James Duesenberry (1949), have gained importance in economics. In this paper we explore whether and to what extent group dynamics or social forces and past experiences affect corruption. In other words, we explore theoretically and empirically whether conditional cooperation matters (hypothesis 1) and whether corruption is contagious (hypothesis 2). We use the notion of “conditional corruption” for these effects. The experimental economics literature has explored (*pro-*)*social preferences* through designs

that implement own and others' material payoffs. We observe models of reciprocity, inequity aversion, or altruism in the literature (see Rabin 1993, Charness and Rabin 2002, Fehr and Schmidt 1999, Bolton and Ockenfels 2000, Andreoni and Miller 2002). We have presented a theoretical framework that allows derivation of these two hypotheses. The theoretical part is supplemented with empirical evidence on conditional corruption and contagion. Interestingly, only a limited number of studies on corruption have explored this question. Similar discussions on social interactions can be found in the crime literature or more specifically in the literature on information cascades, network externalities, fads, herd behavior or bandwagon effects (see, e.g., Banerjee 1992, Bikchandani, Hirshleifer, and Welch 1992, 1998, Katz and Shapiro 1985). However, as a novelty we present a large amount of empirical evidence that explores this question in the area of corruption. First we use two data sets at the micro level followed by a large international panel data set at macro level covering almost 20 years. The results clearly indicate that the willingness to be corrupt is influenced by the perceived activities of peers and other individuals. Moreover, the panel data set at the macro level also indicates that the past level of corruption has a strong impact on the current corruption level which indicates that contagion matters. The results clearly show that conditional corruption matters. The findings therefore underscore the relevance of social interactions. The results are of particular importance in politics as genuine information is weak and incentives to collect information are limited due to the possibility of free-riding (Wintrobe 2006). When developing policy strategies it is recommended to take into account that individuals are not acting in isolation. Social interactions and group dynamics are highly relevant in the understanding of corruption. A critical mass of cooperative individuals is required to induce a positive dynamic process of conditional cooperation. On the other hand, a society which has many non-compliant individuals will inherit a weak social norm which

leads to a shift to a non-cooperative situation similar to a “corruption trap”. Thus, policies should take into account that we may observe a path-dependent process within a society

REFERENCES

- Abed, George T., and Gupta, Sanjeev, "Governance, Corruption & Economic Performance," International Monetary Fund, 2002.
- Adam, Christopher, "Testing for Regime Shifts in Short-Sample African Macroeconomic Data: A Survey of Some Monte Carlo Evidence," Working Paper 93.1, The Study of African Economies, University of Oxford, 1993.
- Adams, J. Stacey, "Inequity in social exchange," In *Advances in Experimental Social Psychology*, 167-299, Berkowitz, Leonard, eds. (New York: Academic Press, 1965).
- Ades, Alberto, and Rafael Di Tella, "Rents, Competition and Corruption," *American Economic Review*, 89(1999), 982-994.
- Aidt, Toke S., "Economic analysis of corruption: a survey," *The Economic Journal*, 113(2003), 632-652.
- Alm, James, Jorge Martinez-Vazquez and Benno Torgler, "The Evolution of Tax Morale in Russia in the 90s," *National Tax Association Papers and Proceedings*, Conference 2005, 287-292, 2006.
- Akerlof, George A, "A Theory of Social Custom, of Which Unemployment May be One Consequence," *The Quarterly Journal of Economics*, 94(1980), 749-75.
- Andreoni, James, and John Miller, "Giving According to GARP: An Experimental Test of the Consistency of Preferences for Altruism," *Econometrica*, 70(2002), 737-753.
- Andvig, Jens Chr. and Moene, Karl Ove, "How corruption may corrupt," *Journal of Economic Behaviours & Organization*, 13(1990), 63-76.
- Banerjee, Abhijit V, "A Simple Model of Herd Behavior," *Quarterly Journal of Economics*, 107(1992), 797-817.
- Becker, Gary S., *The Economic Approach to Human Behaviour*, (Chicago: The University of Chicago Press, 1976).
- Becker, Gary. S., *Accounting for Tastes*, (Cambridge, MA: Harvard University Press. 1996).
- Becker, Gary S. and Kevin M. Murphy, *Social Economics: Market Behaviour in a Social Environment*. (Cambridge, MA: Belknap / Harvard Press, 2000).
- Berninghaus, Siegfried K. and Werner Güth, "Buying Versus Hiring - An Indirect Evolutionary Approach," *Discussion Papers on Strategic Interaction 2002-39*, Strategic Interaction Group, Max Planck Institute of Economics, 2002.
- Bertrand, Marianne and Sendhil Mullainathan, "Do People Mean What They Say? Implications for Subjective Survey Data," *American Economic Review (Papers and Proceedings)*, 91(2001), 67-72.

- Bikhchandani, Sushi, David Hirshleifer, and Ivo Welch, "A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades," *Journal of Political Economy*, 100(1992), 992-1026.
- Bikhchandani, Sushi, David Hirshleifer, and Ivo Welch, "Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades," *Journal of Economic Perspectives* 12(1998), 151-170.
- Bird, Richard M., Jorge Martinez-Vazquez, and Benno Torgler, "Societal Institutions and Tax Effort in Developing Countries," CREMA Working Paper Series 2004-21, Center for Research in Economics, Management and the Arts, 2004.
- Bird, Richard M., Jorge Martinez-Vazquez, and Benno Torgler, "Tax Effort: The Impact of Corruption, Voice and Accountability, Working Papers Series 2007-223, School of Economics and Finance, Queensland University of Technology, 2007.
- Bolton, Gary E. and Axel Ockenfels, "ERC: Theory of Equity, Reciprocity, and Competition," *American Economic Review*. 90(2000), 166-193.
- Cadot, Olivier, "Corruption as a gamble," *Journal of Public Economics*, 33(1987), 223-244.
- Charness, Gary, and Matthew Rabin, "Understanding Social Preferences with Simple Tests," *The Quarterly Journal of Economics*, 117(2002), 817-869.
- Cook, Philip J., and Kristin A. Goss, "A Selective Review of the Social-Contagion Literature," Working paper, Sanford Institute of Policy Studies, Duke University, 1996.
- Coleman, James S., *Foundations of Social Theory*, (Cambridge, MA: Harvard University Press, 1990).
- De Soto, Hernando, *The Other Path. The Invisible Revolution in the Third World*, (New York: Harper & Row, 1989)
- Dreher, Axel, "Does Globalization Affect Growth? Evidence from a New Index of Globalization," *Applied Economics*, 38(2006), 1091-110.
- European Values, Questionnaire, Tilburg University, The Netherlands, 1999.
- Elster, J., *The Cement of Society: A Study of Social Order*, (Cambridge: Cambridge University Press, 1989)
- Elster, Jon, Social Norms and Economic Theory, *Journal of Economic Perspectives*, 3(1989), 99-117.
- Falk, Armin, and Fehr, Ernst, "Psychological foundations of incentives," *European Economic Review* 46(2002), 687-724.
- Falk, Armin, Urs Fischbacher, and Simon Gächter, "Living in two neighborhoods – Social interaction in the lab," CESifo Working Paper No. 954, Munich, 2003.
- Fehr, Ernst, Urs Fischbacher, Bernhard von Rosenblatt, Jürgen Schupp, and Gert G. Wagner, "A nation-wide laboratory examining trust and trustworthiness by integrating behavioral experiments into representative surveys," CESifo Working Paper No. 866, Munich, 2003.

- Fehr, Ernst, and Simon Gächter, "Reciprocity and Economics: The Economic Implications of Homo Reciprocans," Working Paper, University of Zurich, 1997.
- Fehr, Ernst, and Klaus M. Schmidt, "A Theory of Fairness, Competition, and Cooperation," *The Quarterly Journal of Economics*, 114(1999), 817–868.
- Fischbacher, Urs, and Simon Gächter, "Heterogeneous social preferences and the dynamics of free riding in public goods," CeDEx Discussion Paper No. 2006-01, Centre for Decision Research and Experimental Economics, Nottingham, 2006.
- Fischbacher, Urs, Simon Gächter, and Fehr Ernst, "Are people conditionally cooperative? Evidence from a public goods experiment," *Economics Letters*, 71(2001), 397–404.
- Frey, Bruno S., and Benno Torgler, "Tax morale and conditional cooperation," *Journal of Comparative Economics*, 35(2007), 136–159.
- Frey, Bruno S., and Stephan Meier (2004a), "Pro-social behavior in a natural setting," *Journal of Economic Behavior and Organization*, 54(2004), 65–88.
- Frey, Bruno S., and Stephan Meier (2004b), "Social comparisons and pro-social behavior. Testing 'conditional cooperation' in a field experiment," *American Economic Review*, 94(2004), 1717–1722.
- Gächter, Simon, "Conditional cooperation: Behavioral regularities from the lab and the field and their policy implications," unpublished manuscript, University of Nottingham, 2006.
- Gërzhani, Klarita, "Tax Evasion in Albania: An Institutional Vacuum?" paper presented at the Annual Meeting of the European Public Choice Society, Belgrade, 2002.
- Glaeser, Edward L., Bruce Sacerdote, and Jose A. Scheinkman, "Crime and Social Interactions," *The Quarterly Journal of Economics*, 111(1996), 507–548.
- Glaeser, Edward L., and Raven E. Saks, "Corruption in America," *Journal of Public Economics*, 90(2006), 1053–1072.
- Goel, Rajeev K., and Michael A. Nelson, "Are Corrupt Acts Contagious? Evidence from the United States," *Journal of Policy Modeling*, 29(2007), 839–850.
- Gordon, James P. P., "Individual Morality and Reputation Costs as Deterrents to Tax Evasion," *European Economic Review*, 33(1989), 797–805.
- Güth, Werner, and Menahem E. Yaari, "Explaining reciprocal behavior in simple strategic games: An evolutionary approach," in *Explaining process and change: Approaches to evolutionary economics*, 23–34, WittU, eds, (Michigan University Press, 1992).
- Hartog, Joop, Ada Ferrer-i-Carbonell, and Nicole Jonker, "Linking Measured Risk Aversion to Individual Characteristics," *Kyklos*, 55(2002), 3–26.
- Heldt, Tobias, "Conditional Cooperation in the Field: Cross-Country Skiers? Behavior in Sweden," unpublished manuscript, Uppsala University, 2005.

- Henrich, Joseph, "Cultural group selection, coevolutionary processes and large-scale cooperation," *Journal of Economic Behavior and Organization*, 53(2004), 3-35.
- Duesenberry, James S., *Income, Saving, and the Theory of Consumer Behavior*, (Cambridge, MA: Harvard University Press, 1949).
- Kahan, Dan M., "Social Meaning and the Economic Analysis of Crime," *The Journal of Legal Studies*, 27(1998), 609-622.
- Kanazawa, Satoshi, "Who Lies on Surveys, and What Can We Do About It?" *Journal of Social, Political and Economic Studies*, 30(2005), 361-370.
- Kasper, Wolfgang, and Manfred Streit, *Institutional Economics: Social Order and Public Policy*, (Cheltenham, UK: Edward Elgar, 1999).
- Katz, Michael and Carl Shapiro, "Network Externalities, Competition, and Compatibility," *American Economic Review* 75(1985), 424-440.
- Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, "Governance matters III: Governance indicators for 1996-2002," *World Bank Economic Review*, 18(2004), 253-287.
- Keser, Claudia, and Frans van Winden, "Conditional cooperation and voluntary contributions to public goods," *Scandinavian Journal of Economics*, 102(2000), 23-39.
- Kim, Chungkweon K., "The effects of public transfers and tax rate changes on reported income: experimental evidence," Ph.D. dissertation, University of Pittsburgh, 1994.
- Knack, Stephen, "Aid Dependence and the Quality of Governance," IRIS Center, Working Paper, University of Maryland, 1999.
- Kornai, Janos, "The affinity between ownership forms and coordination mechanism: The common experience of reform in socialistic countries," *Journal of Economic Perspective*, 4(1990), 131-147.
- Kurzban, Robert, Kevin McCabe, Vernon L. Smith, and Bart J. Wilson, "Incremental commitment and reciprocity in a real-time public goods game," *Personality and Social Psychology Bulletin*, 27(2001), 1662-1673.
- Levi, Margaret, *Of Rule and Revenue*, (California: University of California Press, 1988).
- Lewis, Alan, *The Psychology of Taxation*. (Oxford: Martin Robertson, 1982).
- Ludwig, Jens, and Jeffrey R. Kling, "Is Crime Contagious?" Working Papers Series 85, Center for Economic Policy Studies, Department of Economics, Princeton University, 2006.
- Lui, Francis T., "A dynamic model of corruption deterrence," *Journal of Public Economics*, 31(1986), 215-236.
- Mauro, Paolo, "The Persistence of Corruption and Slow Economic Growth," *IMF Staff Papers*, Palgrave Macmillan Journals, 51(1), 2004.
- Martin, Richard, and John Randal, "Voluntary contribution to a public good: a natural field experiment," unpublished manuscript, Victoria University of Wellington, Wellington, 2005.
- Martinez-Vazquez, Jorge, and Robert M. McNab, "The tax reform experiment in transition countries," *National Tax Journal*, 53(2000), 273-298.

- Manski, Charles F., "Identification of Endogenous Social Effects: The Reflection Problem," *Review of Economic Studies*, 60(1993), 531-542.
- Manski, Charles F., "Economic Analysis of Social Interactions," *Journal of Economic Perspectives*, 14(2000), 115-136.
- Marx, Karl. *Wage Labor and Capital*, in: K. Marx and F. Engel, *Selected Works*, Vol.1, (Moscow: Progress Publishers, 1849).
- Mishra, Ajit, "Persistence of Corruption: Some Theoretical Perspectives," *World Development*, 34(2006), 349-358.
- Mocan, Naci, "What Determines Corruption? International Evidence from Micro Data," NBER Working Papers 10460, 2004.
- Myles, Gareth D. and Robin A. Naylor, "A Model of Tax Evasion with Group Conformity and Social Custom," *European Journal of Political Economy*, 12(1996), 49-66.
- Naylor, Robin A., "Strikes, Free Riders and Social Customs," *Quarterly Journal of Economics*, 104(1989), 771-805.
- Ostrom, Elinor, "Collective Action and the Evolution of Social Norms," *Journal of Economic Perspectives*, 14(2000), 137-158.
- Polinsky, Mitchell A. and Steven Shavell, "Corruption and Optimal Law Enforcement," Working Paper 171, John M. Olin Program in Law and Economics, Stanford Law School, 1999.
- Polinsky, Mitchell A. and Steven Shavell, "The Economic Theory of Public Enforcement of Law," *Journal of Economic Literature*. 38(2000), 45-76.
- Posner, Richard A., "Social Norms and the Law: An Economic Approach," *American Economic Review (Papers and Proceedings)*, 87(1997), 365-369.
- Rabin, Matthew, "Incorporating Fairness into Game Theory and Economics," *American Economic Review*. 83(1993), 1281-1302.
- Rabin, Matthew, "Psychology and economics," *Journal of Economic Literature*, 36(1998), 11-46.
- Rege, Mari, "Social Norms and Private Provision of Public Goods," *Journal of Public Economic Theory*, 6(2004), 65-77.
- Rose-Ackerman, S., *Corruption and Government: Causes, Consequences, and Reform*, (Cambridge: Cambridge University Press, 1999).
- Sah, Raaj K., "Persistence and Pervasiveness of Corruption: New Perspectives," Working Paper Series, 560, Economic Growth Center, Yale University, 1988.
- Sah, Raaj K., "Corruption across Countries and Regions: Some Consequences of Local Osmosis," Working Paper Series 10-2005, School of Economics, Singapore Management University, 2005.

- Shang, Jen, and Rachel Croson, "Field experiment in charitable contribution: The impact of social influence on the voluntary provision of public goods," unpublished manuscript, University of Pennsylvania, Philadelphia, 2005.
- Smith, Adam, *The Theory of Moral Sentiments*, (Oxford: Clarendon Press, 1759/1976).
- Spichtig, Mathias and Christian Traxler, "Social Norms and the Evolution of Conditional Cooperation," Discussion Papers in Economics 1398, University of Munich, Department of Economics, 2007.
- Swamy, Anand, Omar Azfar, Stephen Knack, and Young Lee, Gender and Corruption, *Journal of Development Economics*, (64)2001, 25-55.
- Taylor, Peter D., Evolutionarily stable strategies with two types of player, *Journal of Applied Probability* 16(1979), 76-83.
- Torgler, Benno, *Tax Compliance and Tax Morale: A Theoretical and Empirical Analysis*, (Cheltenham, UK: Edward Elgar, 2007).
- Torgler, Benno, "The Importance of Faith: Tax Morale and Religiosity," *Journal of Economic Behavior and Organization*, 61(2006), 81-109.
- Torgler, Benno, and Bin Dong, "Corruption and Political Interest: Empirical Evidence at the Micro Level," Working Paper Series 2008-230, School of Economics and Finance, Queensland University of Technology, 2008.
- Torgler, Benno, and Friedrich Schneider, "The impact of tax morale and institutional quality on the shadow economy," *Economics working paper series*, 2007-02, Department of Economics, Johannes Kepler University, 2007.
- Torgler, Benno, and Neven T. Valev, "Corruption and Age," *Journal of Bioeconomics*, 8(2006), 133-145.
- Torgler, Benno, and Neven T. Valev, "Public Attitudes Toward Corruption and Tax Evasion: Investigating the Role of Gender Over Time," *School of Economics and Finance Discussion Papers and Working Papers Series 214*, Queensland University of Technology, 2007.
- Traxler, Christian, "Social Norms and Conditional Cooperative Taxpayers," Discussion Papers in Economics 1202, Department of Economics, University of Munich, 2006.
- Veblen, Thorstein, *The Theory of the Leisure Class*, (New York: MacMillan, 1899).
- Wintrobe, Ronald, *Rational Extremism: The Political Economy of Radicalism*. (Cambridge: Cambridge University Press, 2006).

Table 1: Impact of Conditional Corruption (EVS)

DEPENDENT VARIABLE: JUSTIFIABILITY OF CORRUPTION (highest value = never justified)	Coeff	z-Stat. (1)	Marg.	Coeff.	z-Stat. (2)	Marg.	Coeff.	z-Stat. (3)	Marg.	Coeff.	z-Stat. (4)	Marg.	Coeff.	z-Stat. (5)	Marg.
MODELS	WEIGHTED ORDERED PROBIT (0-3) ^a			WEIGHTED ORDERED PROBIT (1-10) ^a			WEIGHTED PROBIT			WEIGHTED PROBIT			WEIGHTED PROBIT (9,10=1), else 0		
CONDITIONAL CORRUPTION															
PERCEIVED SHARE OF COMPATRIOTS ACCEPTING A BRIBE (SAB)	-0.133***	-8.61	-0.046	-0.142***	-9.29	-0.049	-0.110***	-6.85	-0.038	-0.151***	-8.79	-0.051	-0.184***	-9.62	-0.045
Formal and Informal Education															
FORMAL	0.006***	3.07	0.002	0.007***	3.24	0.002	0.006***	2.95	0.002	0.004*	1.67	0.001	0.008***	2.77	0.002
POLITICAL INTEREST	0.063***	5.11	0.022	0.061***	5.07	0.021	0.050***	3.95	0.017	0.045***	3.38	0.015	0.075***	4.92	0.018
Demographic Factors															
AGE 30-39	0.198***	5.85	0.066	0.194***	5.87	0.065	0.199***	5.55	0.066	0.224***	5.99	0.073	0.235***	5.84	0.053
AGE 40-49	0.300***	8.16	0.098	0.290***	8.01	0.095	0.301***	7.78	0.098	0.356***	8.83	0.112	0.358***	8.16	0.078
AGE 50-59	0.342***	8.49	0.109	0.336***	8.56	0.108	0.342***	8.17	0.11	0.428***	9.79	0.13	0.426***	8.84	0.088
AGE 60-69	0.503***	11.9	0.154	0.496***	11.76	0.152	0.498***	11.22	0.152	0.607***	13.17	0.175	0.597***	11.90	0.115
AGE 70+	0.586***	11.37	0.171	0.567***	11.04	0.167	0.569***	10.43	0.167	0.707***	12.64	0.193	0.750***	11.59	0.130
FEMALE	0.132***	5.99	0.046	0.133***	6.15	0.046	0.139***	6.01	0.048	0.162***	6.82	0.055	0.145***	5.48	0.035
Marital Status															
MARRIED	0.128***	4.09	0.044	0.129***	4.2	0.045	0.147***	4.43	0.051	0.122***	3.51	0.041	0.097***	2.60	0.024
WIDOWED	0.146***	2.78	0.049	0.148***	2.84	0.049	0.156***	2.8	0.052	0.105*	1.83	0.035	0.113*	1.79	0.026
DIVORCED	0.024	0.52	0.008	0.018	0.39	0.006	0.049	1.01	0.017	0.036	0.73	0.012	0.015	0.27	0.004
SEPARATED	0.0002	0	0.0001	-0.052	-0.52	-0.018	0.066	0.67	0.022	0.001	0.01	0	-0.108	-1.00	-0.027
Employment Status															
SELFEMPLOYED	0.031	0.69	0.01	0.032	0.75	0.011	0.036	0.77	0.012	-0.124**	-2.51	-0.043	-0.116**	-2.13	-0.030
Risk Attitudes															
RISK AVERSE	0.236***	10.56	0.083	0.230***	10.61	0.081	0.238***	10.12	0.084	0.090***	3.58	0.031	0.069**	2.49	0.017
Urbanization															
URBANIZATION	-0.009**	-2.09	-0.003	-0.008*	-1.91	-0.003	-0.010**	-2.06	-0.003	-0.009*	-1.74	-0.003	-0.009*	-1.69	-0.002
Religiosity															
CHURCH ATTENDANCE	0.042***	9.45	0.015	0.042***	9.54	0.014	0.041***	8.7	0.014	0.013**	2.48	0.005	0.024***	3.94	0.006
Geographic Region															
WESTERN EUROPE	0.168***	7.49	0.058	0.171***	7.82	0.059	0.162***	6.83	0.056						
COUNTRY FIXED EFFECTS	NO			NO			NO			YES			YES		
Pseudo R2	0.036			0.031			0.047			0.099			0.108		
Number of observations	18168			18168			18168			18168			18168		
Prob > chi2	0.000			0.000			0.000			0.000			0		

Notes: The reference group consists of AGE<30, MAN, SINGLE/LIVING TOGETHER, OTHER EMPLOYMENT STATUS. The symbols *, **, *** represent statistical significance at the 10%, 5% and 1% levels, respectively. ^a marginal effects for the highest value reported (never justified). Robust standard errors.

Table 2: Robustness Test and Impact of Conditional Corruption using Micro and Macro Proxies (EVS)

DEPENDENT VARIABLE: JUSTIFIABILITY OF CORRUPTION (PROBIT)	Coeff	z-Stat. (6)	Marg.	Coeff.	z-Stat. (7)	Marg.	Coeff.	z-Stat. (8)	Marg.	Coeff.	z-Stat. (9)	Marg.	Coeff.	z-Stat. (10)	Marg.
							Clustering on countries			Clustering on countries			Clustering on countries		
CONDITIONAL CORRUPTION															
SAB	-0.147***	-8.39	-0.050	-0.161***	-8.56	-0.054	-0.161***	-6.65	-0.054	0.222***	41.70	0.073	0.241***	52.11	0.080
CONTROL OF CORRUPTION							0.207***	31.59	0.069						
<i>Formal and Informal Education</i>															
FORMAL	0.004	1.60	0.001	0.004	1.41	0.001	0.004	0.89	0.001	0.001	0.47	0.000	0.003	0.87	0.001
POLITICAL INTEREST	0.047***	3.49	0.016	0.056***	3.85	0.019	0.056***	5.36	0.019	0.041***	4.34	0.014	0.032***	3.05	0.011
<i>Demographic Factors</i>															
AGE 30-39	0.214***	5.60	0.069	0.209***	5.12	0.067	0.209***	6.05	0.067	0.184***	6.35	0.059	0.189***	6.01	0.060
AGE 40-49	0.352***	8.57	0.110	0.357***	8.20	0.111	0.357***	8.74	0.111	0.274***	7.23	0.085	0.277***	7.99	0.086
AGE 50-59	0.417***	9.40	0.127	0.430***	9.09	0.130	0.430***	9.12	0.130	0.384***	9.21	0.115	0.364***	8.38	0.110
AGE 60-69	0.611***	13.01	0.175	0.606***	11.98	0.172	0.606***	10.09	0.172	0.510***	10.71	0.147	0.513***	10.52	0.148
AGE 70+	0.716***	12.68	0.193	0.705***	11.63	0.190	0.705***	8.33	0.190	0.620***	10.01	0.169	0.621***	10.49	0.170
FEMALE	0.162***	6.68	0.054	0.148***	5.70	0.049	0.148***	7.78	0.049	0.162***	10.05	0.054	0.176***	12.45	0.058
<i>Marital Status</i>															
MARRIED	0.121***	3.41	0.041	0.129***	3.37	0.043	0.129***	3.30	0.043	0.143***	4.67	0.047	0.136***	5.12	0.045
WIDOWED	0.101*	1.73	0.033	0.079	1.28	0.026	0.079	1.61	0.026	0.129***	3.27	0.041	0.117***	3.09	0.038
DIVORCED	0.027	0.54	0.009	0.029	0.53	0.009	0.029	0.47	0.009	0.029	0.74	0.009	0.024	0.65	0.008
SEPARATED	0.000	0.00	0.000	-0.044	-0.41	-0.015	-0.044	-0.58	-0.015	0.035	0.49	0.012	0.059	1.01	0.019
<i>Employment Status</i>															
SELFEMPLOYED	-0.128**	-2.54	-0.044	-0.100*	-1.78	-0.034	-0.100	-1.25	-0.034	-0.092*	-1.79	-0.031	-0.115***	-2.72	-0.039
<i>Risk Attitudes</i>															
RISK AVERSE	0.090***	3.49	0.031	0.122***	4.42	0.041	0.122***	3.49	0.041	0.087***	3.01	0.029	0.071***	2.60	0.024
<i>Urbanization</i>															
URBANIZATION	-0.008	-1.55	-0.003	-0.001	-0.27	0.000	-0.001	-0.20	0.000	-0.010*	-1.72	-0.003	-0.012**	-2.27	-0.004
<i>Religiosity</i>															
CHURCH ATTENDANCE	0.014**	2.50	0.005	0.015**	2.53	0.005	0.015**	1.98	0.005	0.011*	1.91	0.003	0.011**	2.06	0.004
<i>Trust</i>															
GENERALIZED TRUST	-0.024	-0.90	-0.008	-0.025	-0.89	-0.008	-0.025	-0.78	-0.008	-0.019	-0.78	-0.006	-0.024	-1.01	-0.008
<i>Economic Situation</i>															
INCOME				-0.021***	-3.65	-0.007	-0.021**	-2.40	-0.007	-0.012	-1.58	-0.004			
<i>Geographic Region</i>															
COUNTRY FIXED EFFECTS	YES			YES			YES			YES			YES		
Pseudo R2	0.100			0.107			0.107			0.104			0.098		
Number of observations	17537			15395			15395			28989			34475		
Prob > chi2	0.000			0.000			0.000			0.000			0.000		

Notes: The reference group consists of AGE<30, MAN, SINGLE/LIVING TOGETHER, OTHER EMPLOYMENT STATUS. The symbols *, **, *** represent statistical significance at the 10%, 5% and 1% levels, respectively. Robust standard errors.

Table 3: 2SLS Results (EVS)

DEPENDENT VARIABLE: JUSTIFIABILITY OF CORRUPTION	Coeff (11)	t-Stat.	Coeff. (12)	t-Stat.	Coeff. (13)	t-Stat.	Coeff. (14)	t-Stat.
CONDITIONAL CORRUPTION								
PERCEIVED SHARE OF COMPATRIOTS ACCEPTING A BRIBE (SAB)	-0.093***	-6.87	-0.091***	-6.63	-0.094***	-6.58	-0.036**	-2.24
Formal and Informal Education								
FORMAL	0.001	1.18	0.001	1.12	0.001	0.78	0.001	1.49
POLITICAL INTEREST	0.014***	3.24	0.014***	3.25	0.017***	3.73	0.018***	3.95
Demographic Factors								
AGE 30-39	0.064***	4.81	0.060***	4.37	0.058***	4.03	0.062***	4.40
AGE 40-49	0.110***	7.81	0.107***	7.51	0.107***	7.17	0.114***	7.91
AGE 50-59	0.121***	7.97	0.115***	7.49	0.120***	7.42	0.128***	8.28
AGE 60-69	0.178***	11.56	0.177***	11.41	0.174***	10.46	0.183***	11.53
AGE 70+	0.199***	10.98	0.198***	10.89	0.192***	9.88	0.206***	11.13
FEMALE	0.055***	6.87	0.056***	6.81	0.050***	5.83	0.050***	6.01
Marital Status								
MARRIED	0.053***	4.25	0.053***	4.23	0.059***	4.35	0.052***	3.95
WIDOWED	0.042**	2.23	0.042**	2.18	0.040**	1.98	0.037*	1.92
DIVORCED	0.030*	1.67	0.030	1.64	0.034*	1.78	0.017	0.91
SEPARATED	0.025	0.71	0.026	0.71	0.018	0.48	-0.002	-0.06
Employment Status								
SELFEMPLOYED	-0.037**	-2.31	-0.037**	-2.27	-0.027	-1.53	-0.032*	-1.90
Risk Attitudes								
RISK AVERSE	0.036***	4.02	0.038***	4.17	0.050***	5.07	0.047***	4.95
Urbanization								
URBANIZATION	-0.003	-1.64	-0.003	-1.52	-0.001	-0.35	-0.002	-0.95
Religiosity								
CHURCH ATTENDANCE	0.006***	3.46	0.006***	3.48	0.006***	3.31	0.006***	3.33
Economic Situation								
INCOME					-0.006***	-3.01	-0.006***	-3.25
Geographic Region								
COUNTRY FIXED EFFECTS	YES		YES		YES		YES	
First stage regressions:								
Index of Perceived Honesty I	0.735***	52.91	0.733***	51.63	0.734***	48.67		
Index of Perceived Honesty II							0.542***	38.89
Generalized Trust			-0.054***	-4.54	-0.058***	-4.57	-0.068***	-5.30
F-Test of excluded instruments	2799***		1364***		1214***		784***	
Anderson canon. corr. likelihood ratio stat.	3481***		3388***		2991***		2105***	
Anderson-Rubin test	47.60***		47.05***		45.96***		5.44*	
Hansen J statistic			1.801		1.591		0.357	
Number of observations	15755		15248		13331		14281	
Prob > F	0.000		0.000		0.000		0.000	

Notes: The reference group consists of AGE<30, MAN, SINGLE/LIVING TOGETHER, OTHER EMPLOYMENT STATUS. The symbols *, **, *** represent statistical significance at the 10%, 5% and 1% levels, respectively. Robust standard errors.

Table 4: Causality Discussion (Filtering)

<i>WEIGHTED PROBIT DEPEND. V.: JUSTIFIABILITY OF CORRUPTION (highest value = never justified)</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>
<i>INDEPENDENT V. (see specifications)</i>			
<i>Specification (15)</i> Filtered SAB using specification (4)	-0.090***	-5.21	-0.030
<i>Specification (16)</i> Filtered SAB using specification (5)	-0.086***	-4.89	-0.029
<i>Specification (17)</i> Filtered SAB using specification (6)	-0.100***	-5.33	-0.034
<i>Specification (18)</i> Filtered SAB using specification (7)	-0.100***	-5.25	-0.034
CONTROL OF CORRUPTION	0.212***	32.32	0.071

Notes: Summary of four regressions. The reference group consists of AGE<30, MAN, SINGLE/LIVING TOGETHER, OTHER EMPLOYMENT STATUS. The symbols *, **, *** represent statistical significance at the 10%, 5% and 1% levels, respectively. Robust standard errors.

Table 5: Conditional Corruption using WVS

WEIGHTED PROBIT DEPENDENT VARIABLE: JUSTIFIABILITY OF CORRUPTION	Coeff (19)	z-Stat.	Marg.	Coeff. (20)	z- Stat.	Marg.	Coeff. (21)	z- Stat.	Marg.	Coeff. (22)	z- Stat.	Marg.	Coeff. (23)	z-Stat.	Marg.	Coeff. (24)	z- Stat.	Marg.
CONDITIONAL CORRUPTION																		
PERCEIVED LEVEL OF CORRUPTION (PLC)	-0.112***	-11.90	-0.035	-0.020*	-1.81	-0.006	-0.034***	-2.81	-0.010	-0.035**	-2.50	-0.011	-0.043***	-2.95	-0.013	-0.041***	-3.35	-0.009
CONTROL OF CORRUPTION <i>Formal and Informal</i>										0.187***	15.18	0.059	0.185***	14.09	0.058			
<i>Education</i>																		
POLITICAL INTEREST	0.025***	3.02	0.008	0.031***	3.55	0.010	0.021**	2.17	0.006	0.036***	3.15	0.011	0.030**	2.52	0.009	0.051***	5.18	0.011
FORMAL	-0.002	-0.64	-0.001	0.003	0.77	0.001	0.006	1.25	0.002	0.005	0.95	0.002	0.010*	1.75	0.003	0.006	1.34	0.001
<i>Demographic Factors</i>																		
AGE 30-49	0.204***	9.91	0.064	0.195***	9.20	0.059	0.194***	8.51	0.059	0.177***	6.52	0.055	0.183***	6.43	0.057	0.193***	8.36	0.043
AGE 50-64	0.406***	15.37	0.117	0.395***	14.46	0.111	0.399***	13.50	0.111	0.380***	10.83	0.109	0.375***	10.23	0.107	0.392***	12.87	0.077
AGE 65+	0.572***	16.11	0.151	0.532***	14.45	0.138	0.526***	13.04	0.136	0.549***	11.50	0.144	0.531***	10.71	0.140	0.534***	12.55	0.094
FEMALE	0.141***	8.89	0.045	0.141***	8.67	0.044	0.132***	7.40	0.041	0.161***	7.58	0.051	0.152***	6.83	0.048	0.156***	8.61	0.035
<i>Marital Status</i>																		
MARRIED	0.103***	4.99	0.033	0.122***	5.67	0.038	0.136***	5.81	0.042	0.129***	4.64	0.041	0.133***	4.53	0.042	0.126***	5.35	0.029
WIDOWED	0.086**	2.18	0.026	0.084**	2.01	0.025	0.092**	2.04	0.028	0.095*	1.87	0.029	0.072	1.36	0.022	0.098**	2.08	0.021
DIVORCED	0.020	0.48	0.006	-0.001	-0.02	0.000	0.029	0.64	0.009	0.026	0.49	0.008	0.024	0.43	0.007	-0.0001	0.00	0.000
SEPARATED	0.069	1.22	0.021	0.015	0.26	0.005	0.008	0.14	0.003	0.066	0.87	0.020	0.054	0.69	0.017	-0.0002	0.00	0.000
<i>Employment Status</i>																		
SELFEMPLOYED	-0.078***	-2.64	-0.025	-0.088***	-2.87	-0.028	-0.102***	-3.09	-0.032	-0.098***	-2.65	-0.032	-0.106***	-2.70	-0.034	-0.087**	-2.59	-0.020
<i>Risk Attitudes</i>																		
RISK AVERSE	0.084***	4.95	0.026	0.071***	4.03	0.022	0.068***	3.49	0.021	0.080***	3.43	0.025	0.075***	3.07	0.023	0.073***	3.70	0.016
<i>Urbanization</i>																		
URBANIZATION	0.001	0.40	0.000	-0.008**	-2.30	-0.002	-0.007*	-1.80	-0.002	-0.010**	-2.40	-0.003	-0.008*	-1.77	-0.002	-0.005	-1.23	-0.001
<i>Religiosity</i>																		
CHURCH ATTENDANCE	0.0002	0.04	0.0001	0.018***	3.86	0.006	0.017***	3.40	0.005	-0.003	-0.58	-0.001	-0.005	-0.86	-0.002	0.021***	4.02	0.005
<i>Economic Situation</i>																		
INCOME							-0.006	-1.42	-0.002				-0.011**	-2.48	-0.004			
REGIONAL FIXED EFFECTS	YES			NO			NO			YES			YES			NO		
COUNTRY FIXED EFFECTS	NO			YES			YES			NO			NO			YES		
Pseudo R2	0.038			0.082			0.107			0.059			0.058			0.099		
Number of observations	37759			37759			32096			20793			18914			37759		
Prob > chi2	0.000			0.000			0.000			0.000			0.000			0.000		

Notes: The reference group consists of AGE<30, MAN, SINGLE/LIVING TOGETHER, OTHER EMPLOYMENT STATUS. The symbols *, **, *** represent statistical significance at the 10%, 5% and 1% levels, respectively. Robust standard errors.

Table 6: 2SLS Results (WVS)

<i>DEPENDENT VARIABLE: JUSTIFIABILITY OF CORRUPTION</i>	<i>Coeff</i>	<i>t-Stat.</i>	<i>Coeff.</i>	<i>t-Stat.</i>
	(25)		(265)	
CONDITIONAL CORRUPTION				
PERCEIVED CORRUPTION (PLC)	-0.044**	-2.43	-0.061***	-3.04
Formal and Informal Education				
POLITICAL INTEREST	0.007**	2.35	0.003	0.84
FORMAL	-0.001	-0.94	0.000	-0.29
Demographic Factors				
AGE 30-49	0.067***	9.32	0.066***	8.53
AGE 50-64	0.127***	14.96	0.129***	14.19
AGE 65+	0.170***	16.23	0.171***	14.87
FEMALE	0.045***	8.85	0.042***	7.66
Marital Status				
MARRIED	0.039***	5.27	0.042***	5.28
WIDOWED	0.032***	2.83	0.040***	3.35
DIVORCED	0.012	0.89	0.027*	1.94
SEPARATED	0.031*	1.67	0.033*	1.68
Employment Status				
SELFEMPLOYED	-0.024**	-2.43	-0.031***	-2.94
Risk Attitudes				
RISK AVERSE	0.027***	5.14	0.022***	3.79
Urbanization				
URBANIZATION	0.001	0.81	0.001	0.91
Religiosity				
CHURCH ATTENDANCE	-0.0002	-0.15	-0.002	-1.16
Economic Situation				
INCOME			0.0004	0.34
COUNTRY FIXED EFFECTS	YES		YES	
First stage regressions:				
Generalized Trust	-0.302***	-28.14	-0.297***	-25.68
F-Test of excluded instruments	791.73***		659.46***	
Anderson canon. corr. likelihood ratio stat.	956.497***		810.495***	
Anderson-Rubin test	5.88**		9.20***	
Number of observations	36296		30968	
Prob > F	0.000		0.000	

Notes: The reference group consists of AGE<30, MAN, SINGLE/LIVING TOGETHER, OTHER EMPLOYMENT STATUS. The symbols *, **, *** represent statistical significance at the 10%, 5% and 1% levels, respectively. Robust standard errors.

Table 7: Causality Discussion Filtering with WVS Data

<i>WEIGHTED PROBIT DEPEND. V.: JUSTIFIABILITY OF CORRUPTION (highest value = never justified)</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>
INDEPENDENT V. (see specifications)			
<i>Specification (27)</i> Filtered PLC using specification (19)	-0.129***	-12.87	-0.041
<i>Specification (28)</i> Filtered PLC using specification (20)	-0.020*	-1.75	-0.006
<i>Specification (29)</i> Filtered PLC using specification (21)	-0.026**	-2.08	-0.008
<i>Specification (30)</i> Filtered PLC using specification (22)	-0.035**	-2.50	-0.011
CONTROL OF CORRUPTION	0.187***	15.18	0.059
<i>Specification (31)</i> Filtered PLC using specification (23)	-0.043***	-2.95	-0.013
CONTROL OF CORRUPTION	0.185***	14.09	0.058

Notes: Summary of four regressions. The reference group consists of AGE<30, MAN, SINGLE/LIVING TOGETHER, OTHER EMPLOYMENT STATUS. The symbols *, **, *** represent statistical significance at the 10%, 5% and 1% levels, respectively. Robust standard errors.

Table 8: Contagion Effect at the Macro Level

Dependent Variable: Corruption (higher values = lower level of corruption)						
	Beta (32)	t-stat.	Beta (33)	t-stat.	Beta (4)	t-stat.
Corruption (t-1)	0.599***	19.80	0.548***	15.17	0.461***	12.78
Rule of Law					0.204***	7.85
Democratic Accountability					0.180***	7.52
Log (GDP per capita)			0.112***	3.39	-0.048	-1.46
Log(population)			-0.042***	-2.68	-0.056***	-3.98
Globalization Index			0.220***	3.13	0.191***	3.08
Region Fixed Effects	Yes		Yes		Yes	
Time Fixed Effects	Yes		Yes		Yes	
Prob > F	0.000		0.000		0.000	
R ²	0.666		0.710		0.754	
# of observations	1439		1059		1059	

Notes: Estimations with robust standard errors. OLS coefficients = standardized/beta coefficients. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

APPENDIX

Table A1: Countries in the EVS Sample (30 countries)

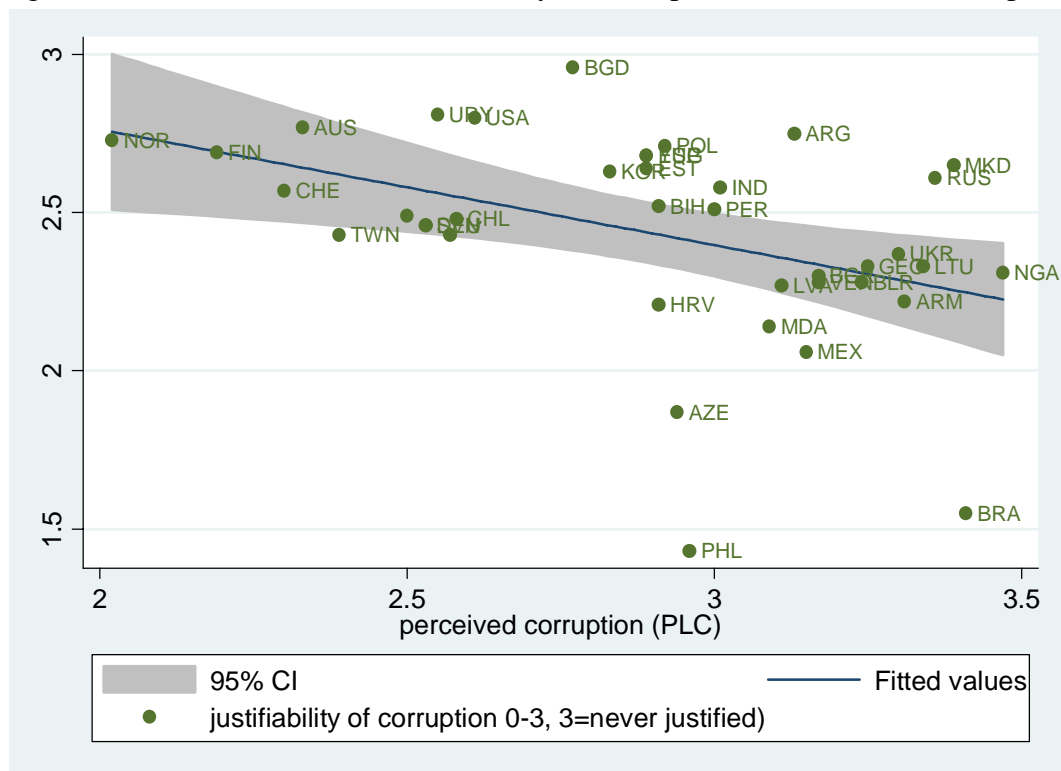
Western European Countries	Eastern European Countries
Germany	Belarus
Austria	Bulgaria
Belgium	Croatia
Great Britain	Czech Republic
Denmark	Estonia
Finland	Greece
France	Hungary
Iceland	Latvia
Ireland	Lithuania
Italy	Poland
Malta	Romania
Netherlands	Russia
North Ireland	Slovak Republic
Portugal	Ukraine
Spain	
Sweden	

Table A2: Countries in the WVSSample (34 countries)

countries	
Armenia	Moldova
Australia	Nigeria.
Azerbaijan	Norway
Bangladesh	Peru
Belarus	Philippines
Bosnia-Herzegovina	Russia
Brazil	Serbia
Bulgaria	Slovenia
Chile	Spain
Croatia	Switzerland
Estonia	Taiwan
Finland	Ukraine
India	Uruguay
Latvia	USA
Lithuania	Venezuela
Macedonia	Western Germany ^a
Mexico	Eastern Germany ^a

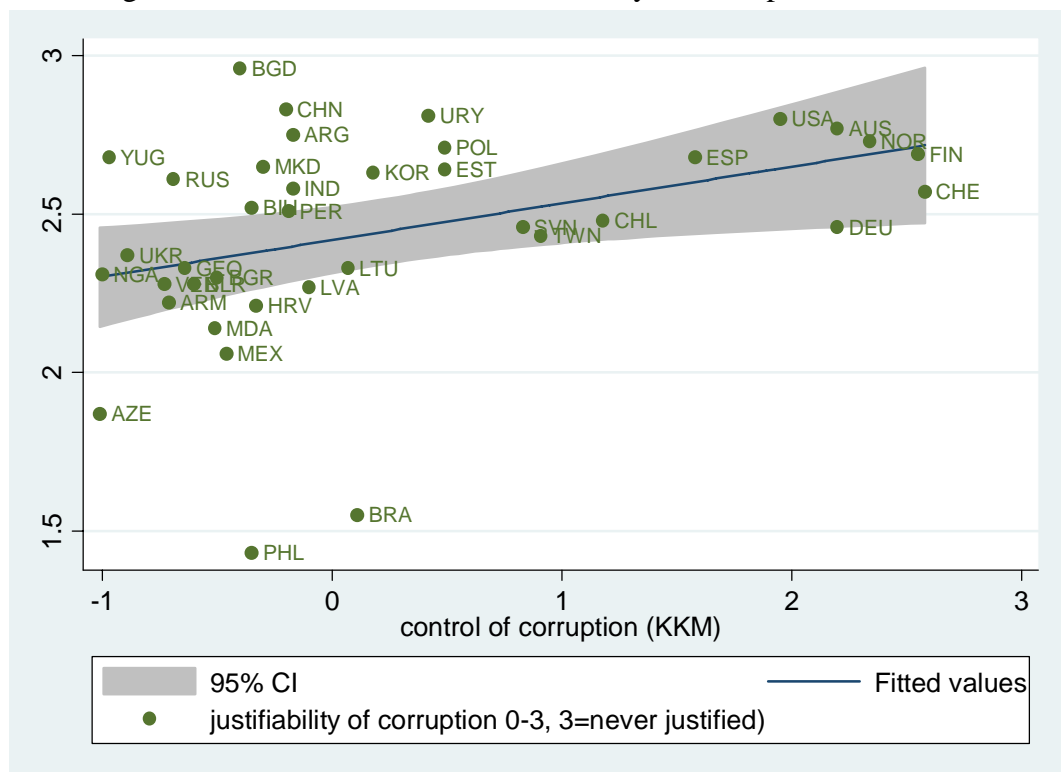
Notes: ^a The data allows differentiation between East and West Germany.

Figure 1: Correlation between Justifiability of Corruption and Perceived Corruption



Note: Pearson $r = -0.424$. More countries than in the regression analysis.

Figure 3: Correlation between Justifiability of Corruption and Control of Corruption



Note: Pearson $r = 0.381$. More countries than in the regression analysis.